

controlling the inclination of a disk storage member so that said error rate becomes small.--

--27. A method for controlling reading conditions while reading data from a recording medium comprising the steps of:

 applying error correction to data read from the recording medium;
 calculating an error rate of said error correction step; and
 controlling the relative speed of the recording medium so that said error rate becomes small.--

REMARKS

Applicants thank the Examiner for acknowledging receipt of Applicants' foreign priority documents under 35 U.S.C. §119.

Applicants respectfully request reconsideration of the objections to the drawings set forth by the Examiner. In that regard, Applicants have set forth a proposed Drawing Amendment which modifies the drawings in order to overcome the Examiner's rejections. Applicants request that the proposed Drawing Amendment be entered in the application. Applicants submit that upon entry of the Drawing Amendment the objections should be withdrawn as they have been overcome by the amendment of the drawings. Additionally, pursuant to the Examiner's request, Applicants have reviewed the specification in order to identify any additional corrections.

In regard to the claim objections noted by the Examiner, the Applicants have amended the claims in order to overcome these rejections. Applicants respectfully request reconsideration of the claim rejections set forth under 35 U.S.C. §112, second paragraph. Applicants have amended the claims in order to overcome these rejections and Applicants submit that the claims now comport with all of the requirements of 35 U.S.C. §112.

Applicants respectfully request that the Examiner withdraw the rejections under 35 U.S.C. §112 in light of these claim modifications.

Applicants respectfully request reconsideration of the prior art rejections set forth by the Examiner under 35 U.S.C. §§102 and 103. Applicants respectfully submit that the prior art references of record, whether considered alone, or in combination, fail to either teach or suggest Applicants presently claimed invention. Applicants claimed invention is directed to new and improved systems and methods for improving the readout of data from a recording medium. Applicants have described numerous embodiments for achieving these improvements. More specifically, Applicants have identified numerous techniques for adjusting the read-out characteristics in light of a detected bit error rate in order to achieve improved readout of stored data. Applicants submit that the invention as now claimed is neither anticipated nor rendered obvious in light of the prior art cited by the Examiner.

More specifically, for example, Applicants have discovered that an improvement of the information readout from a recording medium can be achieved by adjusting the focus of an optical readout mechanism. In one embodiment, this is achieved through the use of a focus error signal that is adjusted depending upon a determined error rate. See, for example, Applicants disclosure at page 22, in lines 10 - 15.

The prior art cited by the Examiner provides no teaching or suggestion whatsoever regarding this advance in the art. In accordance with this embodiment, the determined parameter instruction signal indicates the bias to be given to the focus error signal and the bias is generated by using the parameter error signal. See, for example, Applicants disclosure at page 23, lines 21 - 24.

More specifically, as shown on page 33, in an exemplary embodiment of Applicants present invention, a focus servo signal S12a is generated and the optical pickup 13 is controlled in order to suppress improper focus based on the error rate that is determined by

the system. There is neither teaching nor suggestion regarding this advance in the art. See Applicants disclosure at page 33, lines 1-10. In yet an alternate embodiment, the servo controller 211 controls the speed of the spindle motor 10 based on a spindle speed change instruction signal. The microcomputer 219 uses an error correction evaluation signal from the error corrector to calculate the error rate and thus generates a spindle speed change instruction depending upon the error rate. See, for example, Applicants disclosure at page 35, lines 20-25. As a result, the speed of the spindle motor 10 is controlled based on the error rate that is determined by the system. See Applicants disclosure at page 39, lines 4-9.

In yet another alternate embodiment, the filter characteristics for the servo filter or the focus error signal are adjusted depending upon the error rate that is determined by the system. Similarly, as in the above referenced techniques for improving the data readout rate, the prior art cited by the Examiner provides no teaching or suggestion whatsoever regarding altering the filter characteristics that are applied in order to achieve an improvement of the readout in light of a determined bit error rate for data readout.

In summary, Applicants have identified a variety of techniques for improving data readout. Original claims 9 and 18 provide examples of the various techniques that may be utilized. Specifically, for example, these claims recite that one or more of the following may be used: the adjustment of the amount of light from a laser diode used in reading out information; the frequency of a signal superimposed on a signal applied to the laser diode; an amplitude of the signal superimposed on the signal applied to the laser diode; the gain of the photodiode employed during readout; filter or focus conditions; and/or RF signal characteristics and inclination of the optical disc or speed of the optical disc. The prior art cited by the Examiner provides no teaching or suggestion whatsoever regarding this advance in the art.

It is important to recognize that the Lee reference, the primary reference upon which the Examiner relies in rejecting the claims, United States Patent No. 5,930,448 is merely directed to a tracking control circuit in a digital image recording and reproducing device which has a mechanism for controlling the movement of a magnetic medium according to a servo control signal. The tracking control circuit includes a bit error rate detector and a control unit generates tracking control data corresponding to the bit error rate and a servo circuit 20 provides servo control corresponding to the tracking control data that is supplied from the control unit. The brief disclosure which is only comprised of slightly more than three columns of description merely teaches that the system should be used for performing a normal tracking control when a bit error rate is less than or equal to the predetermined bit error rate limit and transmitting tracking control data corresponding to the bit error rate as servo control data when the bit error rate exceeds the predetermined limit. See specifically, the Summary of the Invention section of the '448 patent in column 2, lines 43-50. The prior art reference thus only identifies only a single one of the extensive list of factors that may be altered in order to achieve the improved readout in accordance with the presently claimed invention.

Applicants have submitted new claims to independently identify each of these various techniques for improving the data readout rate. In rejecting original claim 9 as well as claims 18 and 23, the Examiner merely pointed out that neither Lee nor the Inoue reference, United States Patent No. 5,696,774, teach or suggest the specific use of a control mechanism for an optical device. In attempting to overcome this recognized deficiency, the Examiner has merely identified the Maeda reference which discloses a servo controller 6 for controlling motor and read head in figure 5. Significantly, however, neither Maeda nor any of the other references of record provide any teaching or suggestion regarding the adjustment of these

various characteristics claimed by the Applicants in the present invention which may be utilized in order to achieve improved data readout from a storage medium.

In light of the foregoing, Applicants respectfully submit that the prior art rejections should be withdrawn and that all claims in the application should now be allowed.

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Respectfully submitted,

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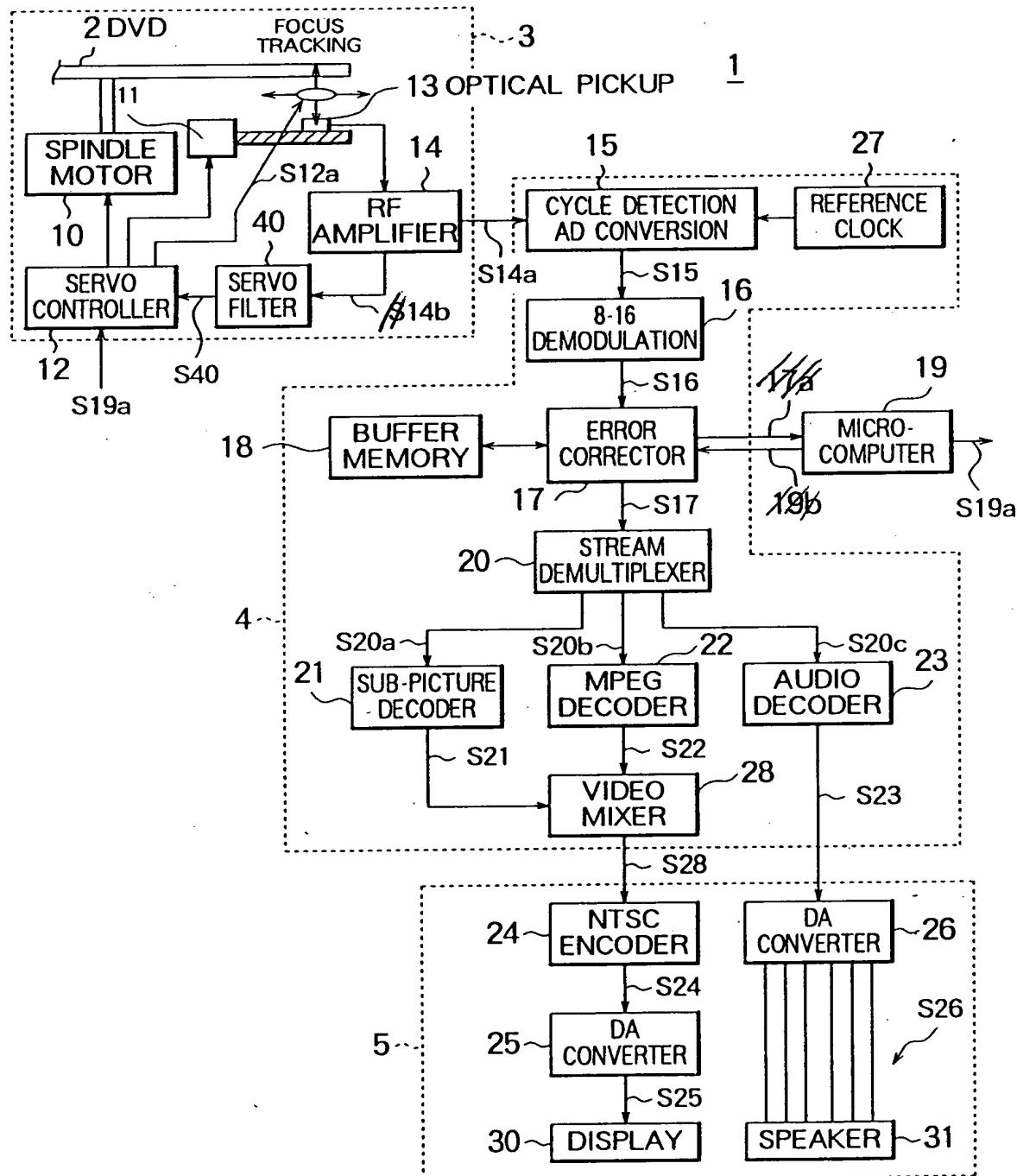
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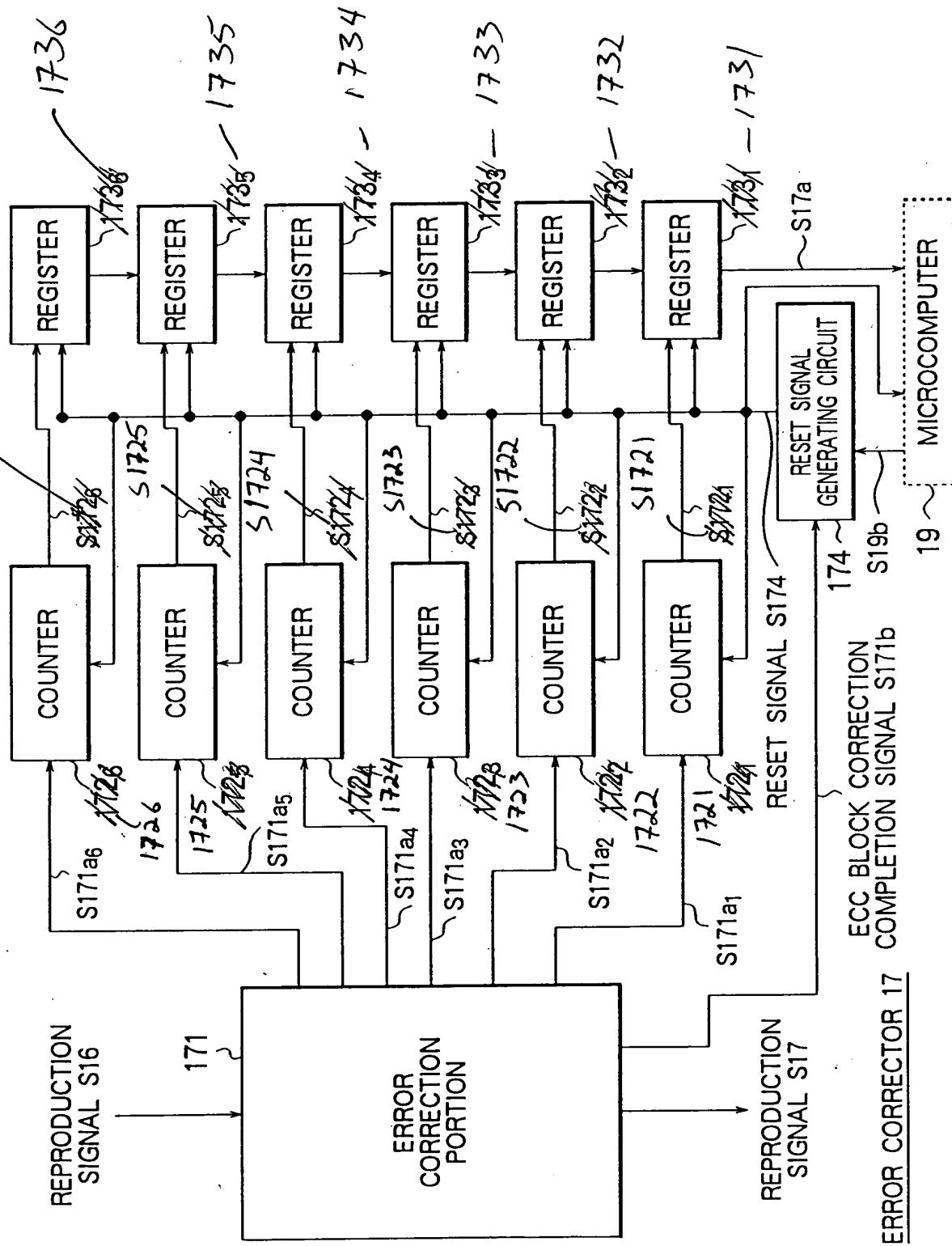
FIG. 2



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J.D. - 11/02/2002



FIG. 3



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J.L.



FIG. 8

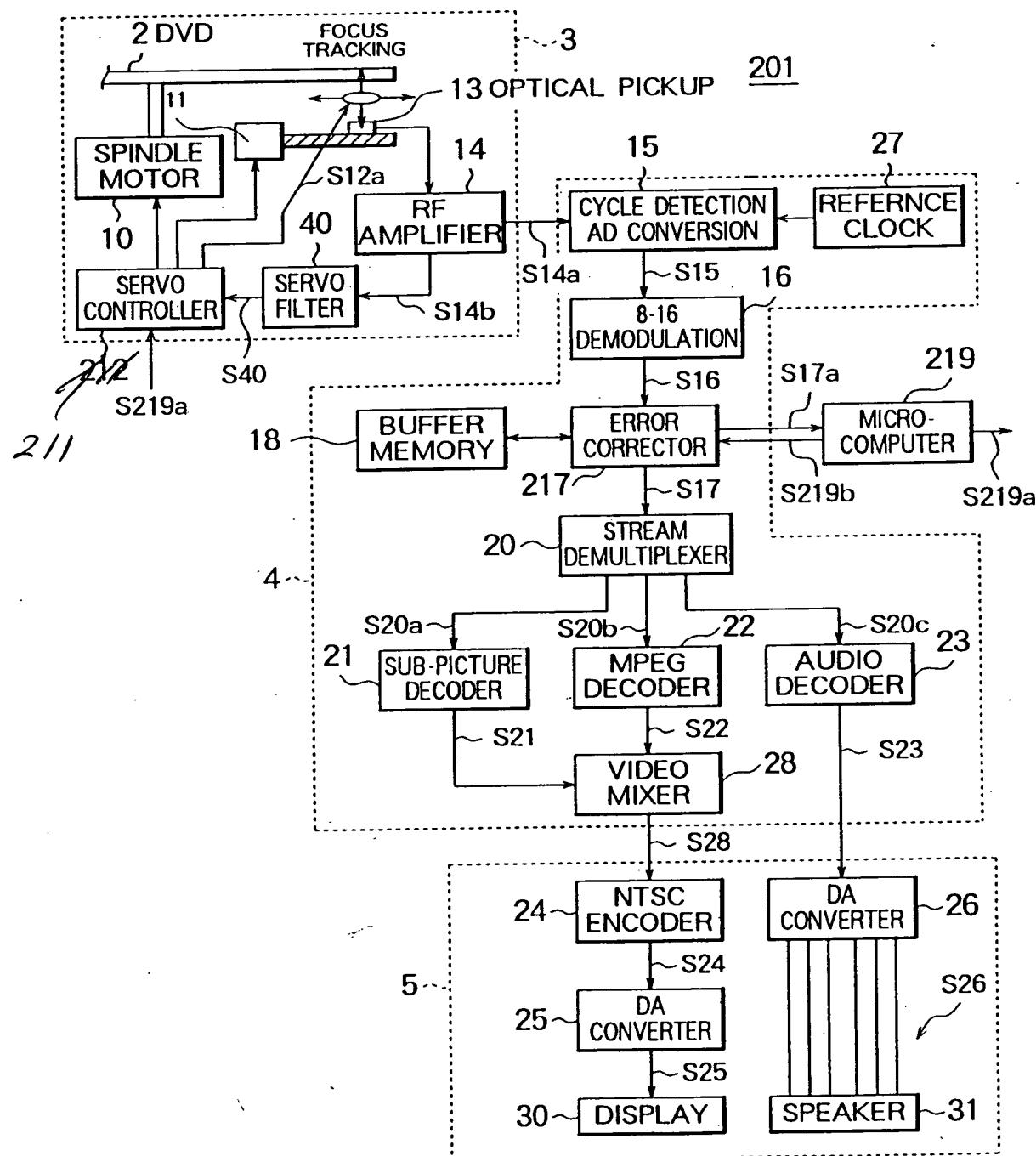
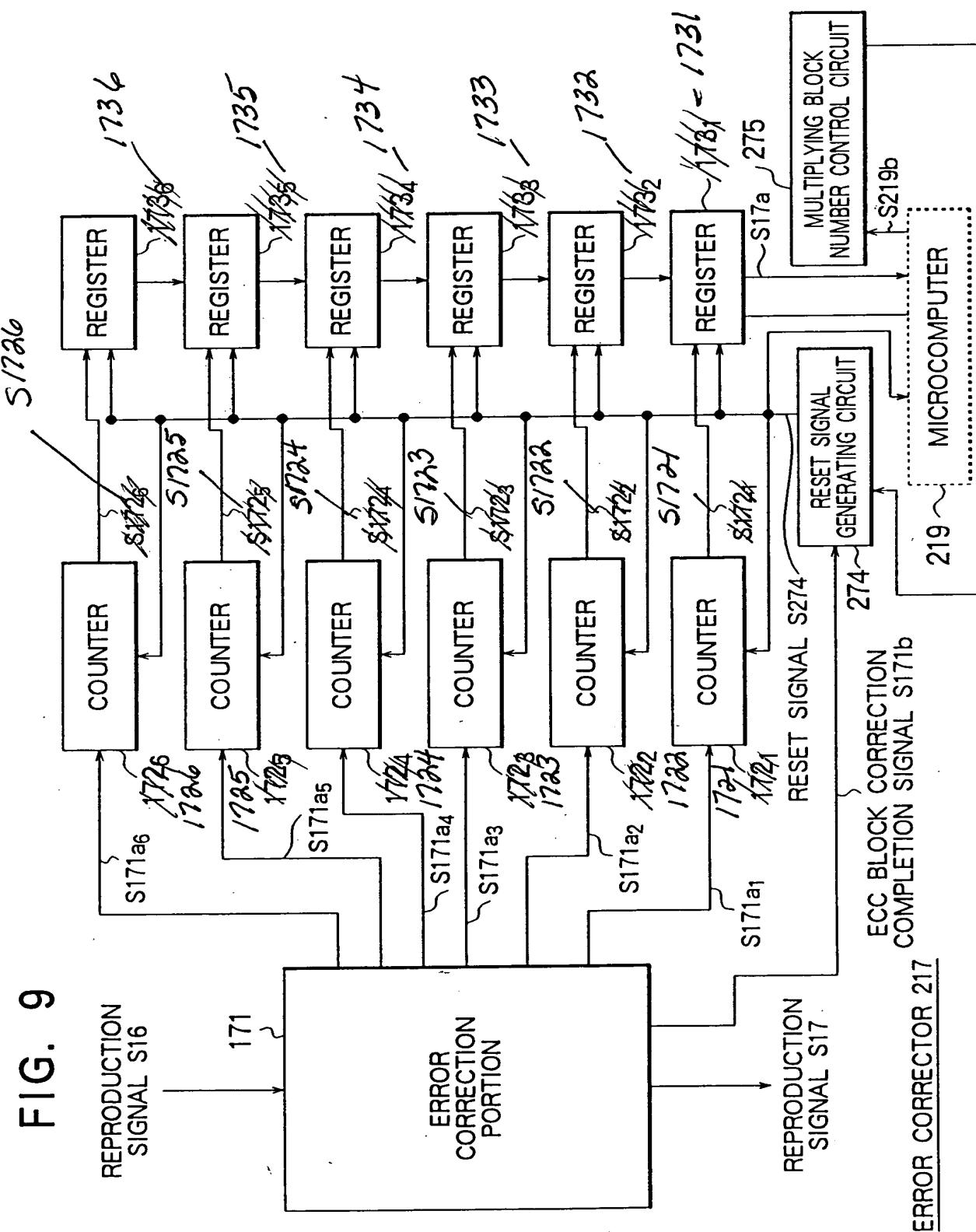




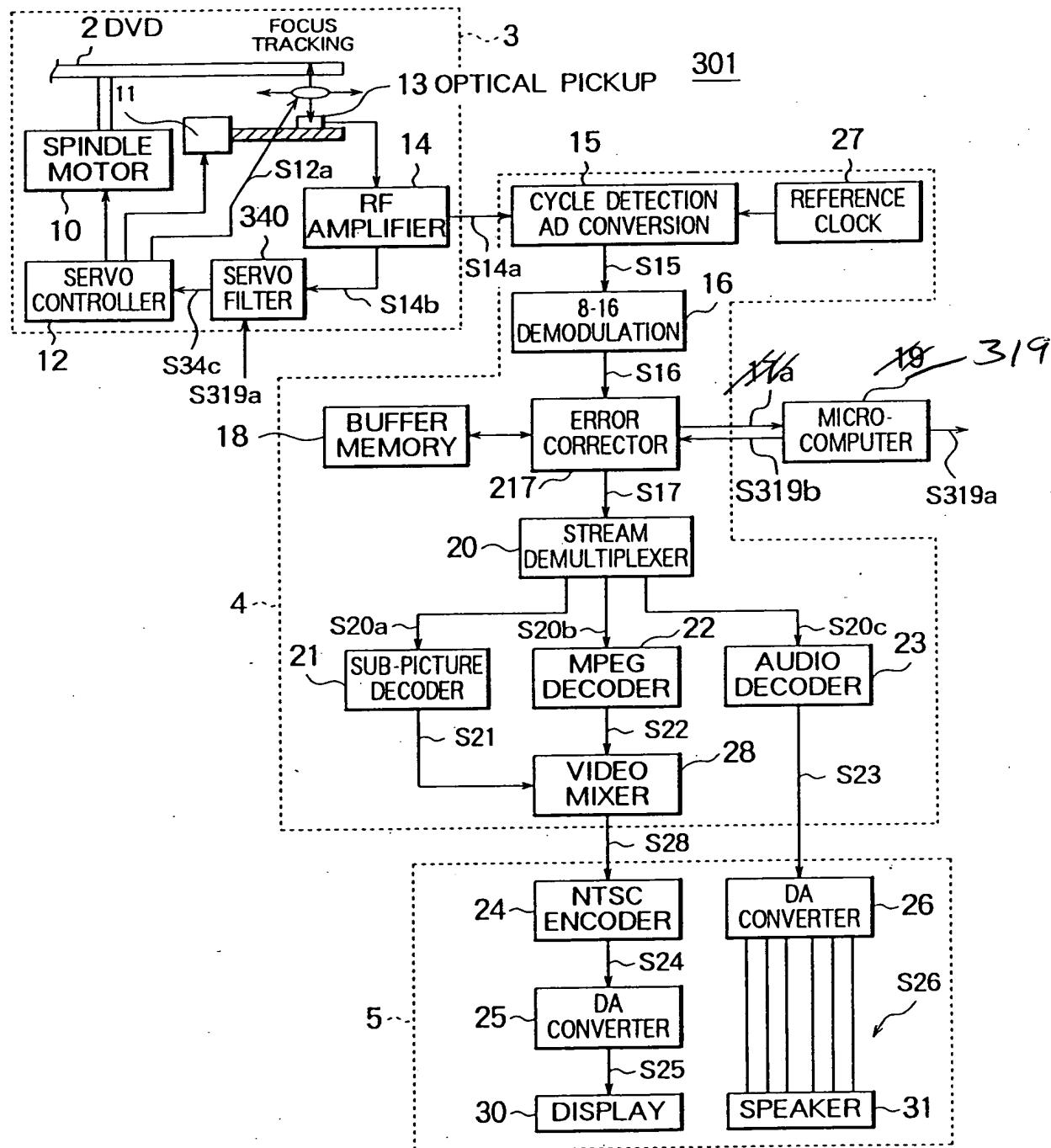
FIG. 9



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FIG. 12



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